Original Research Article

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To Study Feto-Maternal outcome in Relation to O'Sullivan Results

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Abstract

Background: Aim is to study occurance of various adverse feto-maternal outcome in pregnant women having abnormal O'Sullivan results. *Materials and Methods:* 75 gm of oral glucose ingestion by pregnant women at the time of registration irrespective of fasting status (O'Sullivan test) and measuring blood sugar level after 2 hours. Subjects were follow up and observed for development of adverse fetal and maternal outcome in subsequent antenatal visits, intra-natal period and during postnatal period. *Results:* Out of total 464 subjects 76 subjects had abnormal O'Sullivan test results. Amongst the subjects with abnormal O'Sullivan test results 26-27% subjects develop complications during subsequent antenatal visits e.g. polyhydramnios, hypertension, Intra uterine fetal demise (IUFD), preterm labor, abruption palcenta, eclampsia., 6.79% mother having extreme premature, 13.75% had premature babies, 35.09% subjects delivered by LSCS, 10.26% subjects had baby weight more than 3.5 kgs at birth, 10.4% babies had adverse neonatal outcomes e.g. birth asphyxia, NICU admission, congenital anomaly, neonatal hypoglycaemia, early neonatal death (END), 26.9% subjects had intra-natal and postnatal complications. *Conclusion:* Subjects with abnormal O'Sullivan result had higher chances of developing adversefetal and maternal outcome.

Keywords: O'Sullivan Test; IUFD; END.

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Introduction

Gestational Diabetes Mellitus (GDM) is defined as "Glucose Intolerance with onset or first recognition during pregnancy". Gestational Diabetes increases the risk of pre-eclampsia, operative vaginal delivaries, cesarean deliveryintrapartam and post partam complications. In the fetus or neonate the disorder is associated with higher rates of perinatal mortality, macrosomia, birth trauma, birthasphyxia, NICU admissions, hyperbilirubinemia, and neonatal hypoglycemia. Women with GDM and their off springs are at increased risk of developing type 2 diabetes in later life. The prevalence may range from 1-14%. In India, rates of GDM are estimated to be 10- 14.3% which is much higher than in west. O'Sullivan test is used for universal screening for GDM recommended by Government of India So we decided to study various feto-maternal outcomes with respect to O'Sullivan results.

Materials and methods

500 pregnant women attending antenatal OPD irrespective of their gestational age were enrolled in our study. Known diabetic pregnant women and pregnant women with history of Gestational Diabetes Mellitus (GDM) in previous pregnancy were excluded. After a routine history taking and examination (general, vitals, systemic and obstetric) as per our antenatal clinic protocol, counseling regarding need for screening for GDM was done and consent was obtained for enrollment in the study. 75 gms glucose was dissolved in 300mL water and administered orally over 5 minutes for O'Sullivan test irrespective of the fasting

status (as per National Guidelines for Diagnosis and Managementof Gestational Diabetes Mellitus of Government of India, December 2014). A standardized calibrated glucometer was used to measure blood glucose two hours after oral glucose ingestion. If vomiting occurred within 30 minutes of oral glucose intake, the test was repeated the next day; while if vomiting occurred after 30 minutes, the test was continued. Subjects with O'Sullivan level ≥ 140 mg% were subjected to 100 gm 3 hour oral glucose tolerance (OGTT) test.Subjects were follow up and observed for development of adverse fetal and maternal outcome in subsequent antenatal visits, intra-natal period and during postnatal period. Out of total 500 subjects 36 did not available for follow up so, 464 subjects were follow up.

Results

Out of total 500 subjects 82 (16.4%) had abnormal while 418 (83.6%) subjects had normal O'Sullivan test results. Out of 500 subjects 4 amongst the subjects with abnormal O'Sullivan results and 32 amongst the subjects with normal O'Sullivan results did not available for follow up. (Table 1 and Figure 1)

Table 1: Result of O'Sullivan's test

O'Sullivan Test Result	No. of Participants(n=500)
Abnormal	82 (16.4%)
Normal	418 (83.6%)

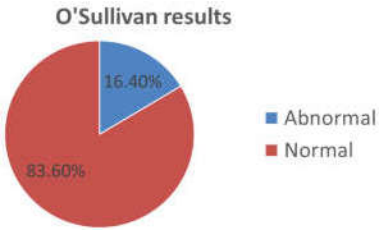


Fig. 1:

Discussion

- Overall 73-74% subjects had no antenatal complications and 26-27% subject had antenatal complications in subjects with normal and abnormal O'Sullivan test results.The difference between two groups was not statistically significant (p value- 0.9). (Table 2)
- Subjects with abnormal O'Sullivan results accounted for only 7.69% of extremeprematurity, 13.75% of preterm births; revealing that abnormal glucose tolerance was notthe primary cause of prematurity in our setup. (Table 2)
- The distribution of gestational age at delivery in the two groups (normal and abnormal) O'Sullivan results was similar with preterm delivery noticed in 20.9% subjects with normal O'Sullivan results and 15.38% subjects with abnormal O'Sullivan results.(p value-0.2) (Table 3)
- Mean gestational age at delivery was 37 weeks and 2 days in our study population. (Table 3)

Table 2:

	Normal O'Sullivan test result (n=386)	Abnormal O'Sullivan test result (n=78)
Subsequent Antenatal complication (n=464)		
Polyhydramnios(n=6)	4(66.67%)	2(33.33%)
Abruptio Placentae(n=1)	1(100%)	0
Hypertension(n=16)	11(68.75%)	5(31.25%)
IUFD(n=3)	2(66.67%)	1(33.33%)
Eclampsia(n=2)	1(50%)	1(50%)
Preterm labour(n=93)	81(87.1%)	12(12.9%)
None(n=343)	286(83.4%)	57(16.6%)

Table 3:

Gestational age at delivery (n=464)		
<34 weeks(n=13)	12(92.31%)	1(7.69%)
34-37 weeks(n=80)	69(86.25%)	11(13.75%)
>37 weeks(n=371)	305(82.21%)	66(17.79%)

- 70.70% subjects with normal O'Sullivan results delivered vaginally, while 64.1% of those with abnormal O'Sullivan results delivered vaginally. 29.30% and 35.09% subjects with normal and abnormal O'Sullivan results delivered by LSCS which was notstatistically significant. (p value-0.2) (Table 3).
- Amongst 78 subjects with abnormal O'Sullivan test results 3(3.84%) birth weight lessthan 2.5 kgs,30 (38.46%) subjects subjects had between 2.5 to 3 kgs, 17(21.79%)subjects had between 3 to 3.5 kgs and 8(10.26%) subjects had more than 3.5 kgs birth weight of newborns, while only 5(1.30%) subjects had baby weight more than 3.5 kgs amongst 386 subjects with normal O'Sullivan results. (Table 4)
- Numbers of newborns having birth weight more than 3.5 kgs (macrosomic babies) found more in subjects with abnormal O'Sullivan results than in subjects with normal O'Sullivan results.

Table 3:

Mode of delivery(n=464)		
Vaginal delivery(n=323)	273(84.52%)	50(15.48%)
LSCS(n=141)	113(80.14%)	28(19.86%)
Emergency LSCS(n=63)	45(71.43%)	18(28.57%)
Elective LSCS(n=78)	68(87.18%)	10(12.82%)

Table 4:

Birth weight(n=464)		
<2.5 kg(n=101)	98(97.03%)	3(2.97%)
2.5-3 kg(n=252)	212(84.12%)	40(15.87%)
3-3.5 kg(n=98)	71(72.45%)	27(27.55%)
>3.5 kg(n=13)	5(38.46%)	8(61.54%)

Table 5:

Neonatal complication(n=461)(*3 IUFD)		
Birth asphyxia(n=1)	1(100%)	0
Congenital anomaly(n=4)	3(75%)	1(25%)
NICU admission(n=9)	5(55.6%)	4(44.4%)
Neonatal hypoglycemia(n=2)	1(50%)	1(50%)
Early neonatal death(n=5)	3(60%)	2(40%)

(p value- <0.001) . Mean birth weight was 2.7 kgs in our study population. (Table 4)

- Neonatal outcome was considered "abnormal" if neonate had Birth asphyxia, congenital anomaly, NICU admission, neonatal hypoglycemia or Early Neonatal Death (END).(Table 5)
- 8 (10.4%) out of total 77 subjects with abnormal O'Sullivan results , while 13(3.4%) out of total 384 subjects had abnormal neonatal outcome. Subjects with abnormal O'Sullivan test results had significantly higher risk of adverse neonatal outcome (p- value =0.01) (Table 5).
- Subjects with abnormal O'Sullivan test results had higher number of postnatal complication (26.92%) as compared to only 8.3% subjects who had postnatal complication in subjects with normal O'Sullivan test results (p value < 0.001) (Table 6).

Table 6:

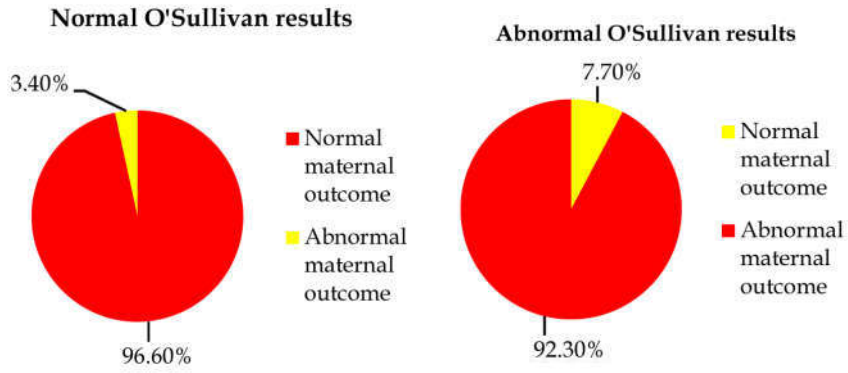
Postnatal complication(n=464)		
PPH(n=33)	27(81.82%)	6(18.18%)
Prolonged hospital stay(n=13)	4(30.80%)	9(69.20%)
Puerperal infection(n=7)	1(14.3%)	6(85.7%)

Table 7:

Feto-maternal outcomes(n=464)	Normal O'Sullivan test(n=386)	Abnormal O'Sullivan test(n=78)	P value
Maternal outcome			
Normal	373	72	
Abnormal	13	6	0.1
Fetal outcome			
Normal	371	69	
Abnormal	15	9	0.01

Maternal outcome with respect to O'Sullivan results

Fig. 2:



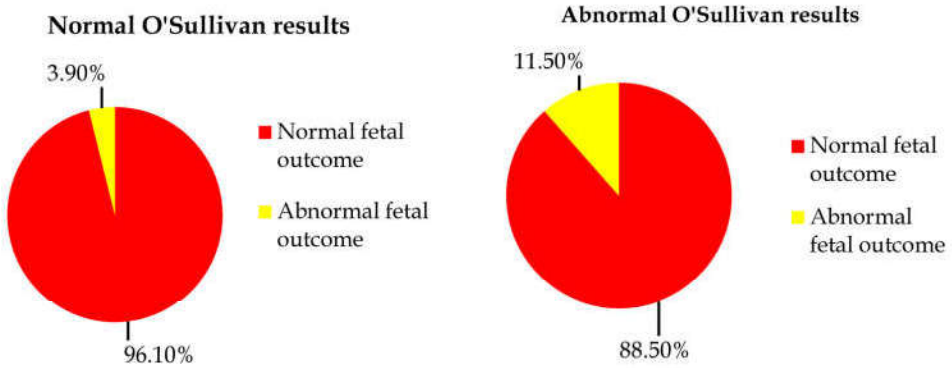
Feto- maternal outcome with respect to O'Sullivan results presented in Table 7.

- 6 subjects with abnormal O'Sullivan test results and 13 subjects with normal O'Sullivan test results had abnormal maternal outcome which was statistically not significant.

Fetal outcome with respect to O'Sullivan results

- Out of total 24 subjects having abnormal fetal outcome 15 had normal and 9 had abnormal O'Sullivan results. The difference in number of subjects having abnormal O'Sullivan results amongst those with abnormal fetal outcome wasstatistically significantly different (p-value - 0.01) from those having normal fetal outcome.

Fig. 3:



Conclusion

- Abnormal feto-maternal outcome is directly associated with abnormal O'Sullivan test results.

References

1. David Turok, StephenD ,Ratcliffe, Elizabeth C. Bexley: Management of gestational diabetes mellitus. American Family Physician, 2003;68;9(1).
2. National Guidelines for Diagnosis and Management of Gestational Diabetes Mellitus. Maternal Health Division, Ministry of Health and Family Welfare, Government of India, December 2014.
3. SetjiA, BuchananTA: Gestational diabetes mellitus. Clinical Diabetes 2005,23:1724,1767-1772.
4. National Diabetes Data Group: Classification and diagnosis of diabetes mellitus and other categories of glucose intolerance. Diabetes 1979;28:1039-1057. (Medline).